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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/527,387	10/17/2005	Agnes Dutron	VANM262.001APC	8653
29995 7590 05/12/2009 KNOBBE MARTENS OLSON & BEAR LLP 2040 MAIN STREET FOURTEENTH FLOOR IRVINE, CA 92614				
EXAMINER				
BADR, HAMID R				
ART UNIT		PAPER NUMBER		
1794				
NOTIFICATION DATE		DELIVERY MODE		
05/12/2009		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

jcartee@kmob.com
eOAPilot@kmob.com

Office Action Summary

Application No.

10/527,387

Applicant(s)

DUTRON ET AL.

Examiner

HAMID R. BADR

Art Unit

1794

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 February 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SE/US)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-5, 7-20, and 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fuglsang et al. (WO 02/19828; hereinafter R1) in view of Collins et al. (2002, A novel family 8, functional and physicochemical characterization; hereinafter R2) and Olesen (US 6,110,508).
3. R1 discloses a composition comprising one or more enzymes and also discloses a method for improving one or more properties of a dough, also a method for preparing a baked product and to a dough and/or a baked product produced thereby. (Abstract)
4. R1 discloses the incorporation of carbohydrases including xylanases, oxidoreductase, amylases, proteases, lipases to the composition for baking purposes (page 10, lines 1-37 and page 11, lines 1-37). It is noted that α -amylase is a fungal amylase from *Aspergillus oryzae*. To support this position, the applicant is referred to US patent number 6,110, 508 for the details of fungal amylase in baking (Col. 5, line 64 to col. 6, line 7).
5. R1 discloses the role of amylases to standardize the flour from the view point of amylolytic activity. Amylases and pentosanases generally provide sugar for the yeast

fermentation, improve the bread volume, retard retrogradation (maintain crumb softness) and decrease the staling rate and stickiness that results from pentosan gums (page 12, lines 5-11).

6. R1 discloses that fungal α -amylases may be used to improve the bread volume and to provide a good and uniform structure of the bread crumb. (page 12, lines 22-24).
7. R1 discloses that enzyme preparations containing a number of pentosanase and hemi-cellulase activities can improve the handling and stability of the dough, improve the freshness, the crumb structure and the volume of the bread. (page 12, lines 33-36).
8. R1 teaches combining α -amylase and hemicellulase in a dough composition. In a particular embodiment the hemicellulase is a pentosanase such as xylanase. (page 13, lines 6-10). The xylanase is preferably of microbial origin e.g. derived from bacteria or fungi.
9. R1 gives an example where an encapsulated xylanase is used in baking. Other ingredients include water, flour, yeast, sugar, salt, ascorbic acid. The encapsulated enzyme was dispersed in water. The ingredients are combined and the dough is mixed (page 26, Example 3 to page 27 line 2). Other ingredients, including gluten, may also be added to the dough (page 22, lines 24-37).
10. R1 discloses the stabilizing or protective agents that can be used with enzymes including organic acids, inorganic salts, sugars etc. (page 21, line 31—page 22, line 7)
11. R1 is silent regarding xylanase from glycoside hydrolases Family 8 as presently claimed.

12. R2 discloses xylanase enzyme belonging to family 8. The xylanase disclosed hydrolyses xylan to xylotriose and xylotetraose and is most active on long chain xylo-oligosaccharides. (Abstract).

13. The xylanase disclosed by R2, hydrolyzes with inversion of configuration. The source of the enzyme is *Pseudoalteromonas haloplanktis* (Abstract).

14. Claims 5-6, and 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fuglsang et al. (WO 02/19828; hereinafter R1) in view of Collins et al. (2002, A novel family 8, functional and physicochemical characterization; hereinafter R2), Olesen (US 6,110,508), and JP 2001-245665 (hereinafter R3, Machine Translation).

15. R1 and R2 are silent regarding *Bacillus halodurans* as the enzyme source.

16. R3 discloses a xylanase from *Bacillus halodurans*. (page 9, lines 1-2).

17. Regarding other sources of xylanase such as *Bacillus halodurans* it would be obvious that the xylanase can be used in baking compositions as disclosed by R1. It would also be obvious that carriers such as powders, granules, liquids including cell extract, cell free extract and purified enzyme as presently claimed can be used in baking composition. R1 for instance uses the encapsulated enzyme (granule).

18. R1 specifically gives the details of the effects of xylanase on rheological properties of the prepared dough as well as volume increase and texture improvements of the baked bread. Therefore, the increase in the loaf volume is a known phenomenon when xylanase is used. Cutting the surface of the dough is a known process in

preparation of breads such as French baguette. The dimensions of the surface cut obtained in bread doughs containing xylanase will be intrinsic to such breads.

19. R1 and R2 disclose all of the features of the presently claimed invention, and R3 discloses a new source of xylanase, therefore it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to use xylanase in dough compositions in order to improve the rheological properties of the dough and the resulting baked bread including loaf volume increase as taught by R1 and replace the xylanase source with the source as disclosed by R3. One would have done so to introduce a new source of xylanase to an already known art. Absent any evidence to contrary and based on the teachings of the cited references, there would be a reasonable expectation of success in using the new source of xylanase.

Response to Arguments

Applicants' arguments have been thoroughly reviewed. These arguments are not persuasive for the following reasons.

1. Applicants argue that the family 8 xylanases as described in the instant specification are used at 20-25C.
 - a. By referring to Collins et al. (R2), the optimum temperature of this cold active xylanase is disclosed. R2 further discloses that the activity at 5C is about 60% of the activity at the optimum temperature.

2. Applicants argue that R1 teaches the use of thermostable enzymes, including xylanases in baked products. Further, R1 also teaches that xylanase increases dough stickiness which is disadvantageous.

a. Firstly R1 does not teach the use of thermostable enzymes. In fact R1 teaches away from using thermostable enzymes. For instance, R1 discloses that fungal α -amylases may be used to improve the bread volume and to provide a good and uniform structure of the bread crumb. (Page 12, lines 22-24). Fungal amylases such as Fungamyl have the advantage of being thermolabile and are inactivated just below the gelatinization temperature. (page 12, lines 30-32). Furthermore, R1 clearly states that enzyme preparations containing a number of pentosanases and hemi-cellulase activities can improve the handling and stability of the dough, and improves the freshness, the crumb structure and the volume of the bread. In the present specification, xylanase is being used for the exact purpose of volume increase and crumb structure and softness.

On the other hand, the xylanase being used by R1 is a fungal xylanase (Pentopan Mono) which is not a thermostable enzyme. The reason for coating the enzyme, as disclosed by R1 is to prevent the action of enzyme on the flour at ambient temperatures and to allow the release of the enzyme at slightly higher temperatures.

3. Applicants argue that one of ordinary skill in the art would not be motivated to use the family 8 xylanases having low thermostability as described in R2 in place of thermostable enzymes described in R1. since such modification would be believed to render the method of R1 unsuitable for its intended use.

a. As it was discussed above, the enzymes disclosed by R1 are not thermostable. Furthermore, the xylanase used in R1 is used for the same purpose as the xylanase used by the applicants. R1 is using it at a higher temperature and the applicants are using it at a lower temperature due to the source and nature of the enzyme as disclosed by R2. Therefore, the intended use is the hydrolysis of xylans to bring about improvement in volume of the loaf and the structure of the crumb. R1 and the applicants are using xylanase for the same purpose.

4. Applicants argue that R1 teaches that xylanase increases dough stickiness which is disadvantageous.

a. Using xylanase specifically at higher doses and for a longer mixing time will cause the problem of dough stickiness. However, in the present specification there is no data to indicate that the use of family 8 xylanase does not produce stickiness. Control of stickiness of dough through controlling the enzyme dose and or reducing the reaction rate of the enzyme are known in the art. Therefore, if a higher dose of enzyme is used, even the family 8 xylanase will cause the dough stickiness problem.

5. Applicants argue that the inversion of configuration is a property of family 8 xylanases and since other xylanases (families 10 and 11) do not result in inversion of configuration, this could result in deleterious effects to the dough or resulting baked product.

a. The inversion of configuration is a biochemical property of the family 8 xylanases. This property is disclosed by R2. However, there is no evidence (no data) to compare

family 8 xylanases to families 10 and 11 regarding the inversion of configuration and the alleged deleterious effects of the inversion of configuration or the lack of inversion.

6. Applicants argue that R3 discloses a xylanase which is used for bleaching of paper and pulp and is not a family 8 xylanase.

a. R3 is a teaching reference which shows the source of xylanase from *Bacillus halodurans*. The enzyme is a family 8 enzyme. It is true that it is being used (R3) as an aid in paper pulp processing, however, this does not mean that it cannot be used for baking as presently claimed. In fact paragraph [0036] of R3 discloses that to induce the xylanase enzyme, wheat can be used among other substrates. Therefore, the xylans in wheat can be hydrolyzed and as a result, the enzyme can be used to effectuate the hydrolysis of xylans and pentosans in wheat flour for baking purposes.

However, note that while R2 and R3 do not disclose all the features of the present claimed invention, R2 and R3 are used as teaching reference, and therefore, it is not necessary for this secondary reference to contain all the features of the presently claimed invention, *In re Nievelt*, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973), *In re Keller* 624 F.2d 413, 208 USPQ 871, 881 (CCPA 1981). Rather this reference teaches a certain concept, and in combination with the primary reference, discloses the presently claimed invention.

Conclusion

1. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HAMID R. BADR whose telephone number is (571)270-3455. The examiner can normally be reached on M-F, 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Keith Hendricks can be reached on (571) 272-1401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Hamid R Badr
Examiner
Art Unit 1794

/KEITH D. HENDRICKS/

Supervisory Patent Examiner, Art Unit 1794